

This listing of claims will replace all prior versions, and listings, of claims in the application.

Listing of Claims:

Claims 1-29 cancelled.

30. (previously amended) A method of selecting those members of a group of compounds that can form a non-covalent complex with a target molecule comprising:

- selecting a mass spectrometer;
- selecting a standard compound that forms a non-covalent binding complex with said target molecule, said non-covalent binding complex having a baseline affinity;
- mixing an amount of said standard compound with an excess amount of said target molecule such that unbound target molecule is present in said mixture;
- introducing said mixture of said standard compound and said target molecule into said mass spectrometer;
- adjusting the operating performance conditions of said mass spectrometer such that the signal strength of said standard compound bound to said target molecule is from 1% to about 30% of signal strength of unbound target molecule;
- introducing a sub-set of said group of compounds into a test mixture of said target molecule and said standard compound;
- introducing said test mixture into said mass spectrometer;
- identifying the members of said sub-set that form complexes with said target by discerning signals arising from said members complexed with said target and identifying the members by their respective molecular masses.

31. (previously amended) The method of claim 30 wherein said signals are measured as the relative ion abundance.

32. (original) The method of claim 30 wherein said sub-set comprises from about 2 to about 8 member compounds.

Claim 33 cancelled.

34. (previously amended) The method of claim 30 wherein said group of compounds comprises a collection library of diverse compounds selected from a historical repository of compounds, a collection of natural products, a collection of drug substances, a collection of intermediates produced in forming drug substances, a collection of dye stuffs, a commercial collection of chemical substances or a combinatorial library of related compounds.

35. (previously amended) The method of claim 34 wherein said collection library of diverse compounds comprises a library of compounds having from 2 to about 100,000 members.

36. (original) The method of claim 30 further including storing the relative abundance and stoichiometry of said complexes of said member compounds and said target in a relational database.

37. (previously amended) The method of claim 36 further including cross-indexing said relative abundance and stoichiometry of said complexes to the structures of said member compounds.

38. (original) The method of claim 30 wherein each of the members of said group of compounds, independently, has a molecular mass less than about 1000 Daltons and has fewer than 15 rotatable bonds.

39. (original) The method of claim 30 wherein each of the members of said group of compounds, independently, has a molecular mass less than about 600 Daltons and has fewer than 8 rotatable bonds.

40. (previously amended) The method of claim 30 wherein each of the members of said group of compounds, independently, has a molecular mass less than about 200 Daltons, has fewer than 4 rotatable bonds, or has no more than one sulfur, phosphorous or halogen atom.

41. (original) The method of claim 30 wherein said mass spectrometer is an electrospray mass spectrometer.
42. (original) The method of claim 30 wherein said target molecule is a RNA, a protein, a RNA-DNA duplex, a DNA duplex, a polysaccharide, a phospholipid or a glycolipid.
43. (original) The method of claim 30 wherein said target molecule is RNA.
44. (previously amended) The method of claim 30 wherein said target molecule is RNA and said baseline affinity expressed as a dissociation constant is about 50 millimolar.
45. (original) The method of claim 30 wherein said target molecule is RNA and said standard ligand is ammonium.
46. (original) The method of claim 30 wherein said electrospray mass spectrometer includes a desolvation capillary and a lens element; and
said adjustment of said operating performance conditions includes adjustment of the voltage across said capillary and said lens element.

Claims 47-120 cancelled.